

**System and Method for Encrypting  
Data Using a Plurality of Processors**

**ABSTRACT**

A system and method are provided to dedicate one or  
5 more processors in a multiprocessing system to performing  
encryption functions. When the system initializes, one of  
the synergistic processing unit (SPU) processors is  
configured to run in a secure mode wherein the local memory  
included with the dedicated SPU is not shared with the  
10 other processors. One or more encryption keys are stored  
in the local memory during initialization. During  
initialization, the SPUs receive nonvolatile data, such as  
the encryption keys, from nonvolatile register space. This  
information is made available to the SPU during  
15 initialization before the SPUs local storage might be  
mapped to a common memory map. In one embodiment, the  
mapping is performed by another processing unit (PU) that  
maps the shared SPUs' local storage to a common memory map.